

FORM PTO-1390 (Modified)  
(REV 11-2000)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

## TRANSMITTAL LETTER TO THE UNITED STATES

DESIGNATED/ELECTED OFFICE (DO/EO/US)

CONCERNING A FILING UNDER 35 U.S.C. 371

13924NP

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

10/070138

INTERNATIONAL APPLICATION NO.

PCT/DE00/02921

INTERNATIONAL FILING DATE

25 August 2000 (25.08.2000)

PRIORITY DATE CLAIMED

3 September 1999 (03.09.1999)

TITLE OF INVENTION

MUD SUCTION UNIT

APPLICANT(S) FOR DO/EO/US

HOFFMEIER, Dieter

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
  - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
  - b. ☒ has been communicated by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
  - a. ☒ is attached hereto.
  - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
  - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ have been communicated by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. ☒ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).
11. ☒ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☒ A copy of the International Search Report (PCT/ISA/210).

Items 13 to 20 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment. (for calculating filing fees)
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
20. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
21. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
22. ☐ Certificate of Mailing by Express Mail
23. ☐ Other items or information:

Page 2 of 2

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

|             |                   |                         |
|-------------|-------------------|-------------------------|
| APPLICANT:  | HOFFMEIER, Dieter | ) GROUP ART UNIT:       |
| SERIAL NO.: | PCT/DE00/02921    | ) EXAMINER:             |
| FILED :     | August 25, 2000   | ) CUSTOMER NO. 000293   |
| FOR:        | MUD SUCTION UNIT  | ) ATT'Y DOCKET: 13924NP |

The Commissioner of Patents  
and Trade-marks  
Washington, D.C. 20231  
U.S.A.

Dear Sir:

**PRELIMINARY AMENDMENT**

Prior to examining the application filed herewith, kindly amend the application as follows.

**IN THE CLAIMS:**

Please amend claims 1 to 7 as follows.

1. (Amended) Mud suction unit having a receiving container, to which a suction element is attached for drawing in a muddy fluid and a discharging element for setting the muddy fluid that has been drawn in into motion, and a motor for generating a suction flow, the motor being shut off when a filling limit of the muddy fluid is reached, characterized therein that the discharging element comprises a vacuum valve which is closed during a suction process due to the negative pressure present in the receiving container and opened when the motor is switched off due to the internal pressure present in the receiving container.
2. (Amended) Mud suction unit according to claim 1, characterized therein that the motor is connected with a ball valve which is situated in the area of a filling limit in the receiving container and which closes when the filling limit is reached.
3. (Amended) Mud suction unit according to claim 1, characterized therein that the receiving container has a connection for the suction element in an upper part of the receiving container at the cover end and a connection for the discharging element in a lower part of the receiving container at the bottom end.

- 2 -

4. (Amended) Mud suction unit according to claim 3, characterized therein that the connection is diametrically opposite the connection.
5. (Amended) Mud suction unit according to claim 1, characterized therein that the suction element has a grip area at which a remote control is located for switching the motor on or off.
6. (Amended) Mud suction unit according to claim 1, characterized therein that a suction tube is formed at one free end of the suction element on which a suction nozzle can be placed, the suction nozzle being provided with a claw-type lower part which has a number of webs.
7. (Amended) Mud suction unit according to claim 6, characterized therein that the suction nozzle has a suction slit, the width of whose opening being adjustable.

#### REMARKS

Claims 3, 5 and 6 have been amended to remove multiple dependencies and all the claims have been amended to delete reference numerals.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with markings to show changes made".

Applicant looks forward to early and favourable consideration of this application.

Respectfully submitted,

DOWELL & DOWELL, P.C.

Suite 309  
1215 Jefferson Davis Highway  
Arlington, Virginia 22202  
U.S.A.

Attention: Ralph A. Dowell  
(Reg. No. 26868)  
Telephone No.: (703) 415-2555  
Fax No.: (703) 415-2559

PCT/DE00/02921VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) Mud suction unit having a receiving container [(1.6)], to which a suction element [93]) is attached for drawing in a muddy fluid and a discharging element [(5)] for setting the muddy fluid that has been drawn in into motion, and a motor [(1.7)] for generating a suction flow, the motor [(1.7)] being shut off when a filling limit of the muddy fluid is reached, characterized therein that the discharging element [(5)] comprises a vacuum valve [(5.2)] which is closed during a suction process due to the negative pressure present in the receiving container [(1.6)] and opened when the motor [(1.7)] is switched off due to the internal pressure present in the receiving container [(1.6)].
2. Mud suction unit according to claim 1, characterized therein that the motor [(1.7)] is connected with a ball valve [(1.9)] which is situated in the area of a filling limit in the receiving container [(1.6)] and which closes when the filling limit is reached.
3. Mud suction unit according to claim 1[or 2], characterized therein that the receiving container [(1.6)] has a connection [(1.2)] for the suction element [(3)] in an upper part of the receiving container [(1.6)] at the cover end and a connection [(1.3)] for the discharging element [(5)] in a lower part of the receiving container [(1.6)] at the bottom end.
4. Mud suction unit according to claim 3, characterized therein that the connection [(1.3)] is diametrically opposite the connection [(1.2)].
5. Mud suction unit according to [one of the preceding] claim[s] 1, characterized therein that the suction element has a grip area [(3.1)] at which a remote control [(3.2)] is located for switching the motor [(1.7)] on or off.

- 2 -

6. Mud suction unit according to [one of the preceding] claim[s] 1, characterized therein that a suction tube [(3.3)] is formed at one free end of the suction element [(3)] on which a suction nozzle [(7)] can be placed, the suction nozzle [(7)] being provided with a claw-type lower part [(7.1)] which has a number of webs [(7.2)].
7. Mud suction unit according to claim 6, characterized therein that the suction nozzle [(7)] has a suction slit [(7.5)], the width of whose opening being adjustable.

21 PRTS

10/070138

JG19 Rec'd PCT/PTO 04 MAR 2002

- 1 -

Mud Suction Unit

The present invention relates to a mud suction unit according to the preamble of claim 1.

A mud suction unit of this type has the disadvantage that the relatively quickly filled receiving containers must be emptied in a very expensive manner. To empty the device, it is necessary to shut off the motor of the device and to bring the device to a suitable emptying site in order to open it and to empty the receiving container out.

A procedure of this type results in many time-consuming interruptions of the mud suction process when cleaning a garden pond or the like.

Therefore, the object of the present invention is to create a mud suction unit with which a mud suction process can be carried out with considerably fewer time-consuming interruptions.

According to the invention, the object is solved by the features of claim 1.

The mud suction unit according to the invention has the advantage that the work can be carried out on a continuous basis without it being necessary to handle the device with difficulty. Furthermore, the device can also be easily refitted as a conventional wet suction unit.

An embodiment of the present invention will be described in greater detail in the following with reference to the drawings, showing:

- 2 -

Fig. 1 a schematic view of a mud suction unit of the present invention;

Figs. 2a, b, c a schematic view of a suction nozzle of the mud suction unit according to the invention, from the top (Fig. 2a), from the top without cover (Fig. 2b) and from the bottom (Fig. 2c).

The mud suction unit 1 according to the invention comprises a housing 1.1 on which a connection 1.2 is formed for a suction element 3 and a connection 1.3 for a discharging element 5. In addition, the housing 1.1 is designed as a cover 1.4 in its upper region away from the base, said cover being detachably fastened to the lower housing 1.1. At the base, the housing 1.1 is provided with a foot element 1.5. In its middle area, the inside of the housing 1.1 is formed as a receiving container 1.6 for mud and water or materials having a similar consistency. The connection 1.2 is situated in the upper part of the receiving container 1.6 and the connection 1.3 in the lower part of the receiving container 1.6, preferably diametrically opposite the connection 1.2.

A motor, preferably an electromotor, is situated above the receiving container 1.6, i.e. above the area in the housing 1.1. that can be filled with mud and water, said motor driving a generally known suction device 1.8, such as e.g. an air-drawing blade element. Air is drawn in from the receiving container 1.6 during operation and released outward via openings in the upper housing region. This results in a negative pressure in the suction element 3.

The motor 1.7 is connected with a ball valve 1.9. The ball valve 1.9 is situated in the vicinity of the filling limit provided in the receiving container 1.6. With increasing filling of the



- 3 -

receiving container 1.6 and when the filling limit is attained, the ball valve is brought into a closed position which causes the motor 1.7 to run audibly quicker.

The suction element 3 is detachably fastened in a generally known manner to the connection 1.2 and comprises a radio remote control 3.2 in a grip area 3.1. Furthermore, a suction tube 3.3 is formed on the free end of the suction element 3, on which a suction nozzle 7 (Fig. 2a, b, c) can be placed. The suction element 3 can be a hose or a pipe.

The discharging element 5 is detachably fastened in a generally known manner to the connection 1.3 and comprises a vacuum valve 5.2 at its free end 5.1. The discharging element 5 is also a hose or a pipe.

It functions as follows:

The suction element 3 hangs in the water in the vicinity of the bottom of the pond with the suction tube 3.3 and, optionally, with the suction nozzle 7. By switching on the motor 1.7 via the remote control 3.2, a suction process begins. Via the suction tube 3.3, mud is drawn in from the bottom of the pond by the suction element 3 into the receiving container 1.6. The receiving container 1.6 and the discharging element 5 slowly fill with mud up to the vacuum valve 5.2. The vacuum valve 5.2 is closed due to the negative pressure that prevails. When the filling limit is reached in the receiving container 1.6, the ball valve 1.9 closes, as a result of which the motor 1.7 runs audibly quicker. This is the indication for the user to switch the motor 1.7 off via the remote control 3.2. The suction tube 3.3 can thereby remain hanging unchanged in the water. By switching the motor 1.7 off, the negative pressure in the receiving container 1.6 disappears, so that the vacuum valve

- 4 -

5.2 now opens due to the internal pressure produced by the mud and the mud runs out via the discharging element 5 until the receiving container 1.6 is empty again. The motor 1.7 can then be switched on again via the remote control 3.2, so that the process is repeated.

In further embodiments, it would be feasible to further automate the on and off switching mechanism. When a specific maximum fill level is attained, the motor 1.7 could be switched off automatically via sensors and when a minimum fill level is attained, it would be automatically switched on again, until the user actuates a main switch from the outside to switch it off.

In addition to the remote control 3.2, a switching arrangement can also be provided directly on the mud suction unit 1.

The suction power is optimized if the suction nozzle 7 is placed on the suction tube 3.3 with a preset cross section. The connection is made via known insert-and-turn plug systems. The suction nozzle 7 is formed with a claw-type lower part 7.1 (Fig. 2c) that has a number of webs 7.2 which are arranged in direction of suction. These webs 7.2 cause the mud to loosen, so that suspended materials are whirled up and coarser components such as pebbles and sand remain on the bottom of the pond.

The claw-type lower part 7.1 has a nozzle opening 7.3 (Fig. 2b). The nozzle opening 7.3 which is open to the upper end of the suction nozzle 7 is sealed by a cover 7.4 (Fig. 2a). The cover 7.4 is movably fastened to the lower part 7.1 in direction of suction. A suction slit 7.5 is formed between the lower part 7.1 and the cover 7.4, at the end, the width of whose opening can be adjusted by shifting the cover 7.4 on the lower part 7.1. In this way, it can be prevented that small fish and other small animals get into

- 5 -

the suction nozzle.

The suction nozzle 7 can also be used in hard shell ponds when turned by 180°. The smooth upper end of the cover 7.4 can then be moved directly over the bottom of the pond.

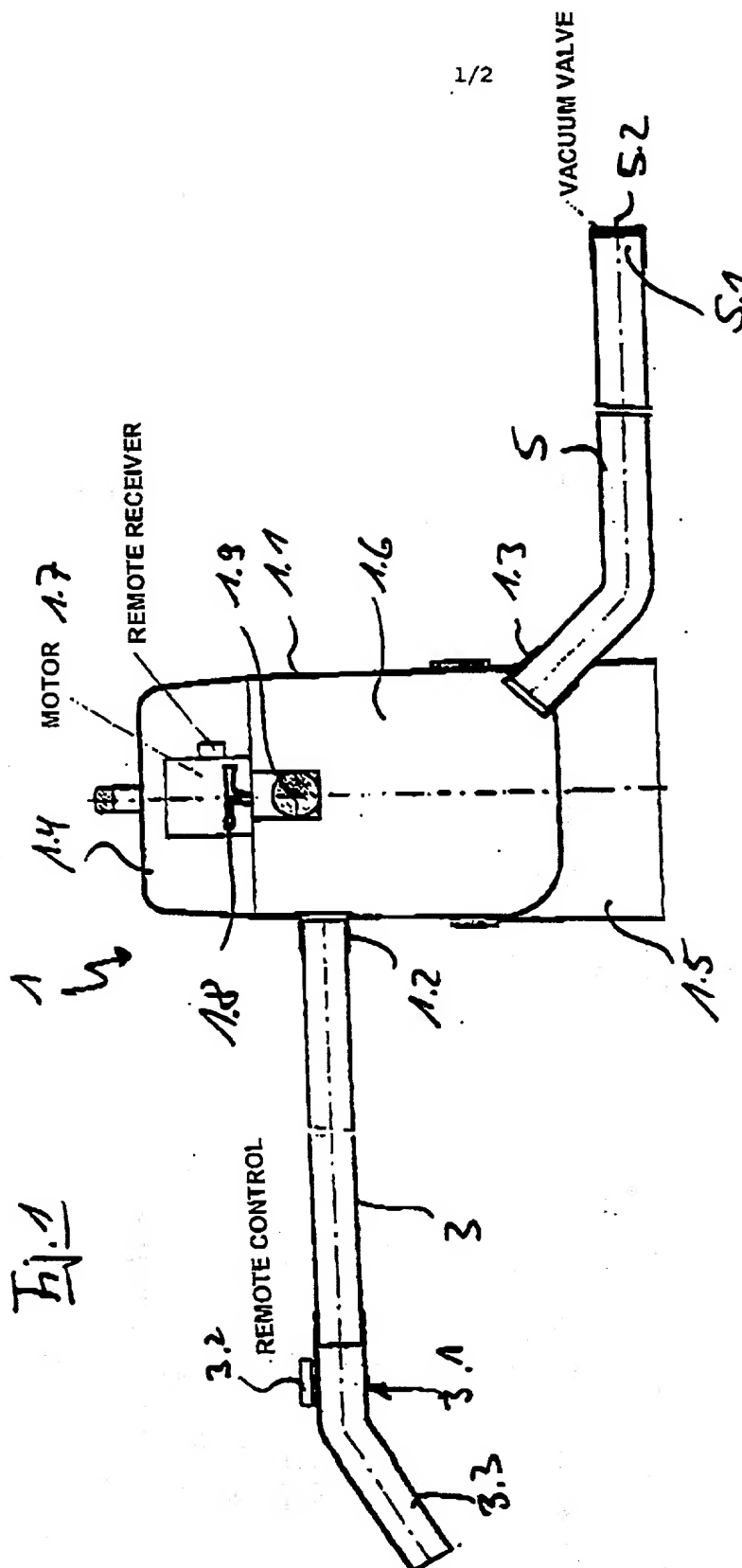
20040303 09:03:03

- 6 -

**Patent Claims**

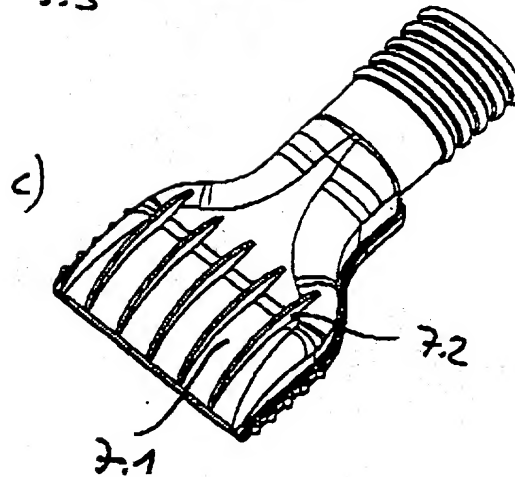
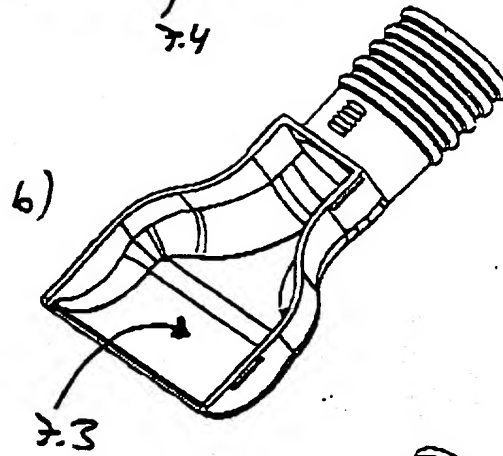
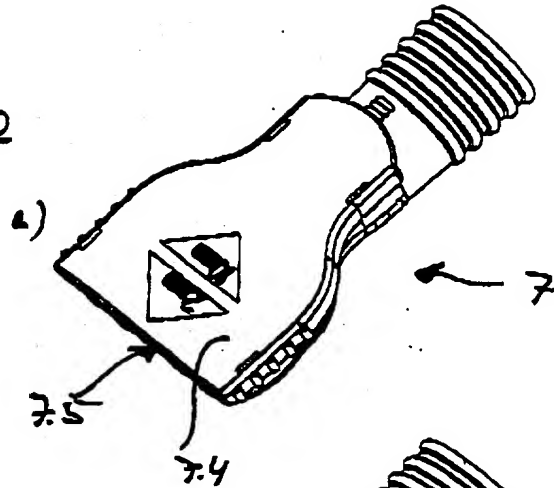
1. Mud suction unit having a suction element that is connected with a receiving container and a motor for generating a suction flow, characterized therein that a discharging element (5) is attached to the receiving container (1.6).
2. Mud suction unit according to claim 1, characterized therein that the discharging element (5) comprises a vacuum valve (5.2) and that the motor (1.7) can be switched off in dependency on a closed position of a ball valve (1.9).
3. Mud suction unit according to claim 1 or 2, characterized therein that the suction element (3) on a suction tube (3.3) has a suction nozzle (7) with a suction slit (7.5), the width of whose opening is adjustable.

10/070138



2/2

Fig. 2



From: Patentanwalt Kayser

+49 238 122404

01/03/2002 10:39 #027 P.002

4/13 2/15/1 2003/1

5.13/18

Attorney Docket No. 13924NP

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
COMBINED DECLARATION AND POWER OF ATTORNEY**

As a below named inventor, I hereby declare that: my residence, past office address and citizenship are as stated below next to my name; that I verily believe that I am the original, first and sole inventor (if only one name is listed below) or a joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**MUD SUCTION UNIT**

the specification of which

(check one)

☐ is attached hereto.☐ was filed on \_\_\_\_\_

as U.S. Application Serial No. \_\_\_\_\_

☒ was filed on August 25, 2000

as PCT International Application No. PCT / DE00/02921.

and (if applicable) was amended on \_\_\_\_\_

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information known to me which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §§ 1.56(a) and (b), which state:

"(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practised or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) prior art cited in search reports of a foreign patent office in a counterpart application,

From: Patentanwalt Kayser

+49 238 122404

01/03/2002 10:43 #02/ P.005

22-12-2002 11:31

UNRECHTEN

11/12/2002 5.17/18

2

(2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

- (i) Opposing an argument of unpatentability relied on by the Office, or
- (ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability."

I hereby claim foreign priority benefits under 35 United States Code, § 119 and/or § 365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate filed by me or my assignee disclosing the subject matter claimed in this application and having a filing date (1) before that of the application on which priority is claimed, or (2) if no priority claimed, before the filing of this application:

#### PRIOR FOREIGN APPLICATION(S)

| <u>Number</u> | <u>Country</u> | <u>Filing Date</u><br><u>(Day/Month/Year)</u> | <u>Date First</u><br><u>Laid-open or</u><br><u>Published</u> | <u>Date</u><br><u>Patented</u><br><u>or Granted</u> | <u>Priority</u><br><u>Claimed?</u> |
|---------------|----------------|---|--|---|------------------------------------|
| 199 42 187.0  | Germany        | 3 September 1999                              |  |   | Yes                                |

I hereby claim the benefit under 35 United States Code, § 119(e) of any United States provisional application(s) listed below:

| <u>Application Number</u> | <u>Filing Date</u> |
|---------------------------|--------------------|
|                           | none               |

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56(a) which became available between the filing date of the prior application and the national or PCT international filing date of this application:

#### PRIOR U.S. OR PCT APPLICATION(S)

| <u>Application No.</u> | <u>Filing Date</u><br><u>(day/month/year)</u> | <u>Status</u><br><u>(pending, abandoned, granted)</u> |
|------------------------|---|---|
|                        |   |   |



I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such wilful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the following patent agents with full power of substitution, association and revocation to prosecute this application and/or international application and to transact all business in the Patent and Trademark Office connected therewith:

RALPH A. DOWELL (Reg. No. 26868)

PLEASE SEND CORRESPONDENCE TO:

Customer No. 000293

DOWELL & DOWELL, P.C.  
Suite 309  
1215 Jefferson Davis Highway  
Arlington, Virginia 22202  
U.S.A.

Attention: Ralph A. Dowell

Telephone No.: (703) 415-2555  
Fax No.: (703) 415-2559

INVENTOR'S SIGNATURE: \_\_\_\_\_ Date: \_\_\_\_\_

Inventor's Name: Dieter HOFFMEIER  
(First) (Middle Initial) (Family Name)

Country of Citizenship: Germany

Residence: Ibbenbüren, Germany DE  
(City, Province, Country)

Post Office Address: Münsterstrasse 255, 49479 Ibbenbüren, Germany

Signed on →  
copy

From: Patentanwalt Kayser

+49 238122404

01/03/2002 10:44 #027 P.004

03-FEB-2002 11:31

UNSETHOLDEN

419 5101 80331 3.13/18

3

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such wilful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the following patent agents with full power of substitution, association and revocation to prosecute this application and/or international application and to transact all business in the Patent and Trademark Office connected therewith:

RALPH A. DOWELL (Reg. No. 26868)

PLEASE SEND CORRESPONDENCE TO:

Customer No. 000293

DOWELL & DOWELL, P.C.  
Suite 309  
1215 Jefferson Davis Highway  
Arlington, Virginia 22202  
U.S.A.

Attention: Ralph A. Dowell

Telephone No.: (703) 415-2555  
Fax No.: (703) 415-2559

X INVENTOR'S SIGNATURE: Dieter Hoffmeyer Date: 29.02.2002

Inventor's Name: Dieter HOFMEIER  
(First) (Middle Initial) (Family Name)

Country of Citizenship: Germany

Residence: Ibbenbüren, Germany  
(City, Province, Country)

Post Office Address: Münsterstrasse 255, 49479 Ibbenbüren, Germany

(File 03200-21 AGS/m)